LIMITED SCOPE EVALUATION OF BUILDING EXTERIOR - FINAL

Herschler Building

125 W. 25th Street

Cheyenne, Wyoming 82001

August 20, 2014

Terracon Project No. F6149127

Prepared For:

Mr. Dennis Egge

State of Wyoming Office of Construction Management

Cheyenne, Wyoming

Prepared By:

Terracon Consultants, Inc.

Wheat Ridge, Colorado

August 20, 2014

Mr. Dennis Egge
Project Manager
ph: 307.777.5691
em: dennis.egge@wyo.gov

Re: **Limited Scope Evaluation of Building Exterior/Interior**
Herschler Building
125 W. 25th Street
Cheyenne, Wyoming 82001
Terracon Project No. F6149127

Dear Mr. Egge:

Terracon Consultants, Inc. (Terracon) has completed a visual evaluation with limited instrument testing of the exterior walls and associated interior elements relative to the reported presence of moisture at the above-referenced property. The focus of this assessment was to determine the source(s) of the on-going water infiltration issues occurring at the property. Our scope also included an assessment of the as-built condition of the exterior walls to determine if conditions exist that would affect the long-term performance of the installed assemblies (i.e. roof, walls, windows, sealants, etc.). This work was performed in general accordance with the scope of services first outlined in Terracon Proposal No. PF6140009, dated March 21, 2014.

This document includes background information, a discussion of field activities, data collected during field activities, a discussion/analysis of findings, and recommendations for repair.

We appreciate the opportunity to be of service to you on this project. In addition to Facilities Services, our professionals provide geotechnical, environmental, construction materials services on a wide variety of projects locally, regionally and nationally. For more detailed information on all of Terracon's services please visit our web site at http://www.terracon.com. If you have any questions concerning this Report, or if we may be of further service, please do not hesitate to contact us.

Sincerely,
Terracon Consultants, Inc.

Ryan M. Cates, EIT
Staff Professional
Facilities Engineering Services

Brent A. Bell, PE
Senior Structural Project Engineer
Facilities Engineering Services

Attached: Limited Scope Evaluation of Building Exterior Report

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1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) is pleased to submit this Report of our findings to the State of Wyoming Office of Construction Management for the Herschler Building, located at 125 W. 25th Street, in Cheyenne, Wyoming. This work was performed in general accordance with the scope of services outlined in Terracon Proposal No. PF6140009, dated March 21, 2014.

1.1 Building / Property Information

The subject property consists of a four-story office building, separated into two wings (east and west) with a central lobby core. There is an underground, concrete parking garage that is constructed integrally with the main building. The property was constructed in 1983. The building has precast concrete cladding walls and aluminum-framed storefront windows.

1.2 Objective

Terracon has been requested to assess the condition of the subject building's roof, windows, cladding, planters, and underground parking garage, as water intrusion has been observed to have occurred at these areas in recent years. The time frame in which water infiltration first began is unknown. The Client has requested Terracon to identify possible sources of the moisture infiltration issues and provide recommendations for repairs. To help reveal, observe and evaluate the current conditions, Terracon used a borescope to capture pictures and videos at select locations.

1.3 Scope

The purpose of these services is to estimate the magnitude and cause(s) of water damage and infiltration in a wide array of in-situ construction assemblies. Additionally, possible remedies and repairs are to be identified to assist in rectifying the situation. The work performed consisted of:

- General visual observations of existing conditions of the exterior walls and window systems at both the exterior and, where accessible, the interior perimeter of the building;
- Visual observations of roof condition;
- Comparison of architectural drawings to 'as-built' conditions;
- Cutting observation openings at multiple locations in cladding to expose areas of concern.

In their examination of the building, HDR, Inc., the current project architect, identified precast fins, limestone base panels, planters, precast soffits, parapet walls, soffit fin tubes, a limestone wall and its base, the garage expansion joint, and the garage-to-plaza-deck connection as being areas of concern. Within these areas, Terracon was tasked with observing and evaluating the following items and issues:

- Extent and possible cause of water infiltration in each area;
- Connections of the precast fins and limestone panels;
- Precast panels at head and sill;

- Adjacent structural elements;
- Metal studs in cladding;
- Steel fireproofing;
- Wall and roof insulation (including “R”-values, if available);
- Flashing and waterproofing;
- Weeps (where installed);
- Soffit and soffit ventilation;
- Parapet walls;
- Discoloration of limestone;
- Garage expansion joints;
- Waterproofing at garage-to-plaza-deck connection;
- Drainage grade/slope of building elements and adjacent grade;
- Visibly identifying potential mold in each area.

This Report documents visual observations, descriptions of the conditions encountered, opinions as to the condition of the system observed, recommendations for appropriate follow-up actions, and general repair options.

Specifically excluded from this scope of work are testing or sampling beyond that referenced above, and evaluation of components and systems that comprise the overall building and site that are unrelated to the exterior wall, window and roof assemblies.

The scope of services for this Report did not include, either specifically or by implication, any environmental or biological (e.g., mold, fungi, or bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials, or conditions. Terracon can provide separate environmental services as part of a different scope, addressed by a different Report, including on-going testing, and which is fully outside of the scope of this Report.

2.0 BACKGROUND INFORMATION

2.1 Documents Reviewed

Terracon was provided with the following documentation for this property, which we have relied upon in providing our services and the assembly of this Report.

Documentation	Source
Limited As-Built Drawings, prepared by *HDR Architects*, dated January 6, 2014*	HDR Architects

***** Original As-Built Drawings were unavailable

2.2 Interviews

In conjunction with our on-site visits and while gathering pertinent information on this property, the following personnel were interviewed or have provided information, which we have relied upon in performing our services and preparing this Report. These individuals were designated as knowledgeable about the site and related improvements.

Name	Title	Telephone
Oley Person	Facility Maintenance Manager	307.286.6342
Dennis Egge	Project Manager – State of Wyoming Office of Construction Management	307.777.5691
Armando Risi	Senior Project Coordinator – HDR, Inc.	303.764.1520

The following information is based upon the reports, emails, and verbal conversations provided by these individuals:

A. The building was completed in 1983 and was occupied by the current Owner.
B. The Herschler State Office Building at the Wyoming State Capitol in Cheyenne, WY is currently experiencing problematic water infiltration into soffit spaces, exterior wall panel void spaces, and into the building.

2.3 Site Visits

Site visits were performed on the following dates by the Terracon individuals shown below. The other identified parties were present at the times of the site visits.

Monday, April 28, 2014		Josh Feider– Terracon – Staff Professional Brent Bell – Terracon – Structural Engineer, PE Dennis Egge – State of Wyoming Representative

		Armando Risi – Senior Project Coordinator Oley Person – Herschler Building Maintenance Personnel
Purpose		Pre-test conference & initial site walk-through to discuss the ongoing issues and develop an efficient schedule to move forward in the investigation.

Monday, May 5, 2014		Josh Feider– Terracon – Staff Professional Brent Bell – Terracon – Structural Engineer, PE Dennis Egge – State of Wyoming Representative Armando Risi – Senior Project Coordinator Oley Person – Herschler Building Maintenance Personnel
Purpose		Interior building walk-through.

Tuesday, May 6, 2014		Josh Feider– Terracon – Staff Professional Dennis Egge – State of Wyoming Representative Armando Risi – Senior Project Coordinator Oley Person – Herschler Building Maintenance Personnel
Purpose		Continuation of interior building walk-through. Accessed building components with the borescope. Accessed the roof, including inside the parapet wall.

Tuesday, May 13, 2014		Josh Feider – Terracon – Staff Professional Ryan Cates – Terracon – Staff Engineer, EIT
Purpose		Accessed the exterior of the building using a 65’ boom lift.

2.4 Dew Point Calculations

Terracon analyzed five (5) different wall assemblies to calculate the potential of condensing water vapor. Dew point studies of multiple existing wall assemblies requested by HDR Architects. For each wall assembly analyzed, three (3) separate temperature gradients were considered and graphed. Moisture was anticipated to be present where the vapor pressure exceeded the saturation pressure. Please refer to Appendix A for dew point calculations and corresponding graphs.

Each graph assumes “as-built” conditions. No weathering effects (e.g. sealant degradation) are considered in the calculations. Because the conditions analyzed represent what is essentially a newly-installed condition, the analysis represents “bounding conditions”, in which design deficiencies are considered separately from weathering effects.

3.0 OBSERVATIONS

3.1 Observed Site Conditions

Terracon investigated thirteen (13) selected areas that appeared visually compromised across the entirety of the exterior building. Many other areas were broadly observed, but not specifically sought for investigation. A borescope was used to aid in the examination of hidden voids and spaces of various building assemblies. Visual observations were more successful than borescope readings in determining the underlying moisture infiltration issues. During the assessment of the building's perimeter walls, planters, roof, and parking garage, the following observations were noted. Please refer to Appendix B for photographs of general conditions. Borescope information, video, and a memory stick are included with this Report.

Underground Parking Garage

1) The edges of the parking garage are in vertical alignment with the edges of the planters, which are located adjacent to the exterior of the building, on the first level.

2) Terracon observed several cracks on the ceiling and perimeter walls of the underground parking structure in the area of the planters. The structural engineer, Brent Bell, noted that the cracks were not structural concerns, but should be sealed to avoid future freeze-thaw degradation.

3) The majority of the cracks exhibited water infiltration, as evidenced by salt/mineral deposits along the crack lines.

4) Garage level drainage system functions (drains, gutters, etc.) were examined, and some leaking was observed in the drainage system piping.

Roof

5) The building's low-slope roof system generally consists of a built up roof system with a granular top layer (reportedly installed two years ago), covering the two wings and the south portion of the atrium area of the building.

6) The roof drains appeared to be functioning properly.

7) The roof over the central lobby is comprised of several rows of skylights set in painted metal frames.

8) The membrane base flashing extends up the perimeter parapet walls and terminates under a pre-finished painted aluminum cap.

9) Flashing on top and around the parapet walls is not completely sealed, and has several missing screws creating open holes.

10) At the building entrance (southwest corner of the east wing), the parapet wall was not insulated. There was also no insulation observed in the parapet wall, when viewed from the fourth floor below.

Exterior/Interior Walls and Windows

11) The cladding consists of both precast concrete and limestone panels with interconnecting storefront windows and curtain wall system.

12) Precast "C" sections form horizontal soffits between floors, and vertical precast fins form sun shades for the windows between the first and fourth floors.

13) Open void spaces and a 4-inch layer of fiberglass insulation separate the precast "C" sections from the inside of the building. The fiberglass insulation was observed to have had striations of discoloration, a possible indication of mold, in some locations. No laboratory testing was performed to determine the presence/absence of mold or mildew. The mitigation of the problem is the preferred action. Testing for specific mold type is unnecessary so long as proper PPE is used in correcting the condition.

14) The insulation, steel braces and kickers behind the soffits appeared to be dry. No visible mold was observed behind in the soffits except the possibility as noted in Item 13 above. The area behind the soffits also appeared to be dry.

15) Steel kickers brace the precast concrete and limestone panels to the main steel frame of the building. It appears that nearly all of the kickers have visible surface rust, although the Terracon structural engineer noted that the steel kicker shape and function did not appear to be compromised. It is likely that the kickers were installed without a rust-proof paint system. The main steel frame is painted and sprayed with fireproofing and did not show signs of rust. Some concerns were raised about the fireproofing of the steel, which had spalled in some locations. The severity of the spalling is of such a small distribution in the building, so as to be considered insignificant.

16) The precast concrete panels have joint sealant in between them. The sealant was observed to be highly weathered, deteriorated, and missing in many areas. The sealant was thought to be urethane-based, not silicone-based, when photos were subsequently reviewed by Terracon engineers. Further discussion on sealants can be found in the Recommendations section of this Report.

17) The limestone panels have either sealant or mortar between them. Approximately 10% of the sealant and mortar joints are cracked or deteriorated to the point that a credit card could be inserted through them.

18) The exterior windows (which are believed to be a Manko 2450FS model) are set in an anodized aluminum curtain wall system.

19) Throughout the interior of the building, wall heaters were installed directly behind (heating the back of) the windows.

20) Several window gaskets around the perimeter of the building had failed, and the glass had become loose, which was likely the result of long-term exposure to ultra-violet radiation from sunlight. The windows did not appear to be thermally broken (i.e. no gaskets, wood

setting blocks).

21) In many areas around the building, light gage steel in the cladding appeared to be loose, bent, and not flush with the windows.

22) One side of the limestone cladding is provided with a vapor barrier. No other vapor barrier was found on other cladding systems. These areas were covered with a thin, black, bituminous coating which appeared to serve as a vapor barrier.

23) The only exterior weeps observed were located in the sealant joints along the bottom of the parapet walls. While the weeps appeared to be intact, their function could not be fully assessed due to surrounding problems observed.

Planters

24) Prior to field observation, a portion of a planter was excavated and exposed. The exposed area was on the west side platform, on the north side of the building, adjacent to the entrance.

25) The exposed area revealed a waterproof membrane/sheet with a 1-inch layer of rigid foam insulation covering it. The planter bottoms were capped with a concrete topping slab. At the time of observation, the topping slab was submerged in approximately 2-inches of water.

26) It is believed that a waterproof membrane/sheet is concealed beneath the concrete topping slab. The thickness of the concrete and any other components underlying the concrete are considered hidden conditions. The planters are to be removed as part of a building addition project; therefore, coring through the topping slab to obtain a cross section was deemed unnecessary.

27) The expansion joint outside the building appeared to be adequately covered by the water proofing membrane that extends up the planter walls from the base.

4.0 ANALYSIS

On-going water infiltration of the subject building is the result of multiple sources. Upon examining all of the study data, the dew point calculations reveal that inherent design flaws add to the already considerable effects of weathering in the overall picture. Due to the nature of the construction, and our understanding of the wall assemblies, water infiltration may be from rainwater penetration through the windows into the walls, it may be caused by wall joint sealant deficiencies or failures, it may be the result of water condensing inside the walls, or it may be some combination thereof. The cracked, damaged, and/or missing joint sealants, along with the large gaps in the curtain wall systems, allows air infiltration/exfiltration into the wall and has the potential to be the primary source of condensation forming in the open ceiling areas and wall cavities.

Given the local climate, the vapor drive direction will change depending on the time of year. In summer, hot and humid air on the exterior will be driven to the cooler, conditioned interior. In winter, the vapor drive will reverse; the warmer conditioned air on the interior will be driven to the colder and dryer exterior. If some location in the interior of the wall reaches the dew point temperature, water vapor in the wall system will condense within the wall assembly.

Once water infiltrates a wall cavity, conditions conducive to the growth of mold and mildew can proliferate. On the north side of the first floor, the wall cavity is more prone to trap moisture, because the vinyl wall paper, installed on the interior face, acts as a vapor barrier, trapping the moisture in the cavity. Evaporation and drying rates of a wall will differ due to compass orientation and season. A wall's permeability and vapor diffusion characteristics will vary with many other factors, such as rainfall and interior heating/cooling and humidity conditions.

The dark striations observed on the fiberglass insulation inside the wall cavities and open ceiling areas could result from a variety of issues, including mold. Studies 4 and 9, Cases 1 and 3 and Study 6, Case 1 of the dew point calculations illustrate that the potential exists for water to condense within the wall. It cannot be shown conclusively that condensation or mold produced the striations. The area where the fiberglass insulation was observed is well ventilated with sufficient air flow and the insulation sample was dry to the touch.

Most areas observed did not have visible mold present. Terracon Industrial Health and Safety professionals were interviewed in the preparation of this Report to address mold issues, specifically. From that interview, it was learned that to *quantify* the hazards associated with mold would require further testing. Specifically, the collection of background air and surface samples, and the performance of any one of many mold-specific tests (petri dish growth, microscopic evaluation, etc.) to determine mold type, and associated health risk, would be necessary. However, such testing would not address mitigation or prevention. Those would be covered in a *qualitative* assessment.

The qualitative assessment of the mold issues addresses the immediate mitigation of the areas of concern. The localized wall areas which seem to be developing mold can be cleaned with commercial cleaners, by trained personnel wearing proper Personal Protective Equipment (PPE). Affected ceiling tiles and suspect insulation should be disposed of and replaced, while wearing proper PPE. A commercial cleaning contractor is recommended for that purpose. It should be noted that, while no immediate health risks were identified, the mitigation recommended is preferred to performing a quantitative assessment

Terracon's structural engineer did not feel that the missing fireproofing constituted any appreciable risk, particularly because it is present in areas where cladding kickers are not fireproofed. This construction technique is not uncommon in buildings of this age and as such, would not be

considered unsafe

The condition of the precast and limestone panel interior support system indicates the presence of moisture due to the high amount of surface rust present. As demonstrated in the dew point calculations of the various building assemblies, water vapor is condensing within the building and forming on the interior building components. The support system was installed without any protection against rust and is therefore slowly deteriorating. Furthermore, due to the age of the building, and the apparent lack of maintenance, the conditions for condensation have significantly increased.

The rust seen in the kickers is what would be anticipated for any unprotected steel in similar conditions. The Society for Protective Coatings (SSPC – formerly Steel Structures Painting Council) has information on appropriate steel paint systems.

5.0 RECOMMENDATIONS

While the exact cause of excess moisture in the wall may be able to be determined with additional investigation, hygrothermal analysis, and laboratory testing, the additional information will likely not change the core recommendations for resolving these issues. However, further investigation may reveal more details about the past presence of moisture in the walls and would help to develop a more tailored repair recommendation. Given the limited scope of the investigation, it should be understood that the following repair recommendations may not resolve all moisture issues nor eliminate the possibility of unanticipated future repairs and/or replacement.

With the known information to date, the following are Terracon's recommendations:

5.1 Underground Parking Garage Repairs

The cracks in the underground parking garage are not indications of structural deficiencies, but appear to be more of an aesthetic issue. When the planter systems get removed and repaired, moisture infiltration into the garage should cease. The cracks then should be cleaned of accumulated mineral deposits and debris, and a concrete sealant should be applied. The sealant recommended is ICO Primer LV or LVFC, as manufactured by International Coatings of Frank Park. IL, or approved equivalent epoxy resin floor coating.

5.2 Roof Repairs

The roof appeared to be in generally good condition with the exception of several missing screws in the perimeter flashing and parapet flashing, which could allow moisture infiltration. These open holes should be filled with new screws, or sealed with a ultra-violet resistant sealant. The existing coping is generally in acceptable condition, although some spot replacement may be needed where new screws will not re-adhere the coping.

5.3 Interior/Exterior Wall and Window Repairs

First and foremost, the deferred maintenance on the exterior sealant joints between both the concrete and limestone panels needs to be performed on the entirety of the building, and maintained. The existing urethane sealants need to be removed completely, which will likely

require grinding. Terracon recommends installing new sealants with silicone, as this sealant material has approximately a 20-year life expectancy compared to urethane, which has approximately a 7-year life expectancy. The grinding may be necessary because silicone will not adhere to a urethane base.

Window replacement is recommended, the selection of which may be based on cost. However, Terracon recommends windows by the following manufacturers be considered for the replacement option:

- YKK- America
- Oldcastle
- Vista Wall

Once the exterior sealants and window systems have been repaired or replaced, Terracon recommends performing an infrared thermographic survey of the exterior of the building. This will help to identify specific areas where heat is escaping, and where blown-in insulation may be the most effectively applied. Blown in or spray foam insulation is preferable in areas that are mostly inaccessible for other insulation applications.

Shop refurbishment of cladding, or complete cladding replacement is an architectural option that has been suggested for aesthetic and building performance purposes, but is considered beyond the scope of this Report. This Report specifically addresses engineering and building performance problems, causes, and remedies. Precast sections are not structurally damaged. Their replacement, if considered, is an architectural consideration.

Localized areas of delaminating vinyl wallpaper, paint, and drywall on the interior of the cladding, should be repaired as necessary. As the exterior of the building at these locations gets repaired, water intrusion issues should cease. Stained ceiling tiles should be replaced after other repairs have taken place.

Although the observed discoloration in the fiberglass insulation does not visually suggest the growth of mildew or mold, a more extensive investigation, such as field and laboratory testing, is recommended to further our understanding and safety of the employees and the building.

Although the level of intensity of rust is unknown, Terracon recommends removing the rust by means of sand blasting and then following up with an application of rust protective paint or applied coating.

5.4 Planters

Plans include the removal of existing planters, but they are to be replaced with a different system. However, it is recommended not to place new planters above the underground parking structure.

5.5 Maintenance System

A maintenance system is to be developed to ensure that the building envelope performs as intended.

QUALIFICATION STATEMENT

The observations, findings, analyses and recommendations contained within this Report are based on our professional judgment and information obtained during the course of this assessment based on the scope of work authorized. The recommendations presented herein are based on our observations, evaluation of the information provided, and the interviews with personnel familiar with the property. No design calculations were made to determine the adequacy of the in-place system(s) or compliance with current or previous building code requirements.

It is possible that defects and/or deficiencies exist that were not readily accessible or visible. Problems may develop with time, which were not evident at the time of this assessment. The opinions and recommendations in this Report should not be construed in any way to constitute a warranty or guarantee regarding the current or future performance of any system identified.

Neither the loss to contents or equipment within the building, nor the monetary loss due to business interruption, has been considered in this assessment. This document is a Report of our findings including general recommendations. Recommendations included herein are based upon the limited information made available to Terracon by the client and by our observations, which are also limited in nature. Recommendations included herein should not be construed or be used as specifications for completing the work.

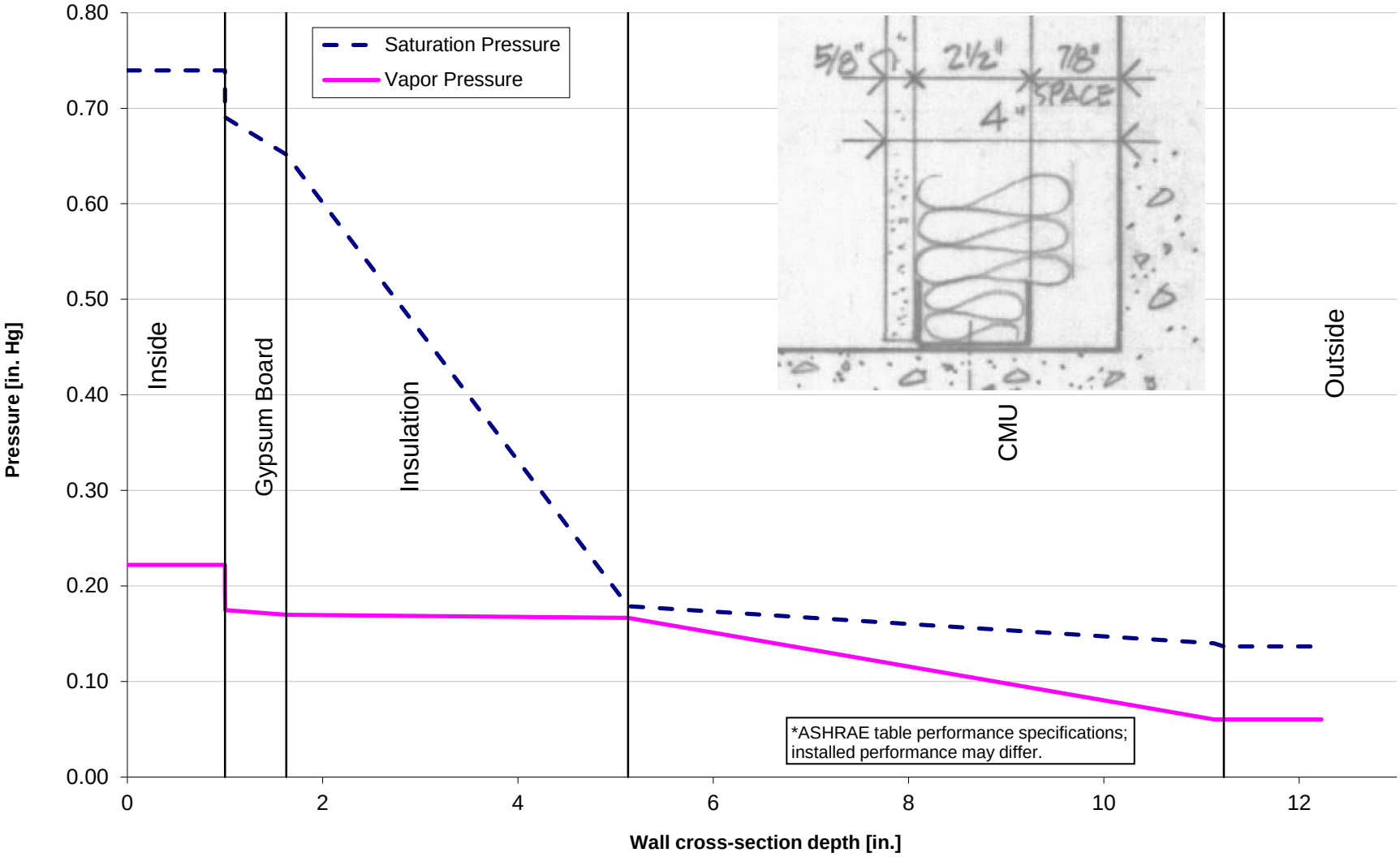
This Report does not reflect variations that may occur across the site. The nature and extent of such variations may not become evident until re-construction, repairs or replacement occurs. If variations appear, it will be necessary to re-evaluate the recommendations of this Report.

In the event that changes in the nature, design, or location of the project as outlined in this Report are planned, the analyses and recommendations contained in this Report shall not be considered valid unless the Consultant reviews the changes and either verifies or modifies the conclusions of this Report in writing.

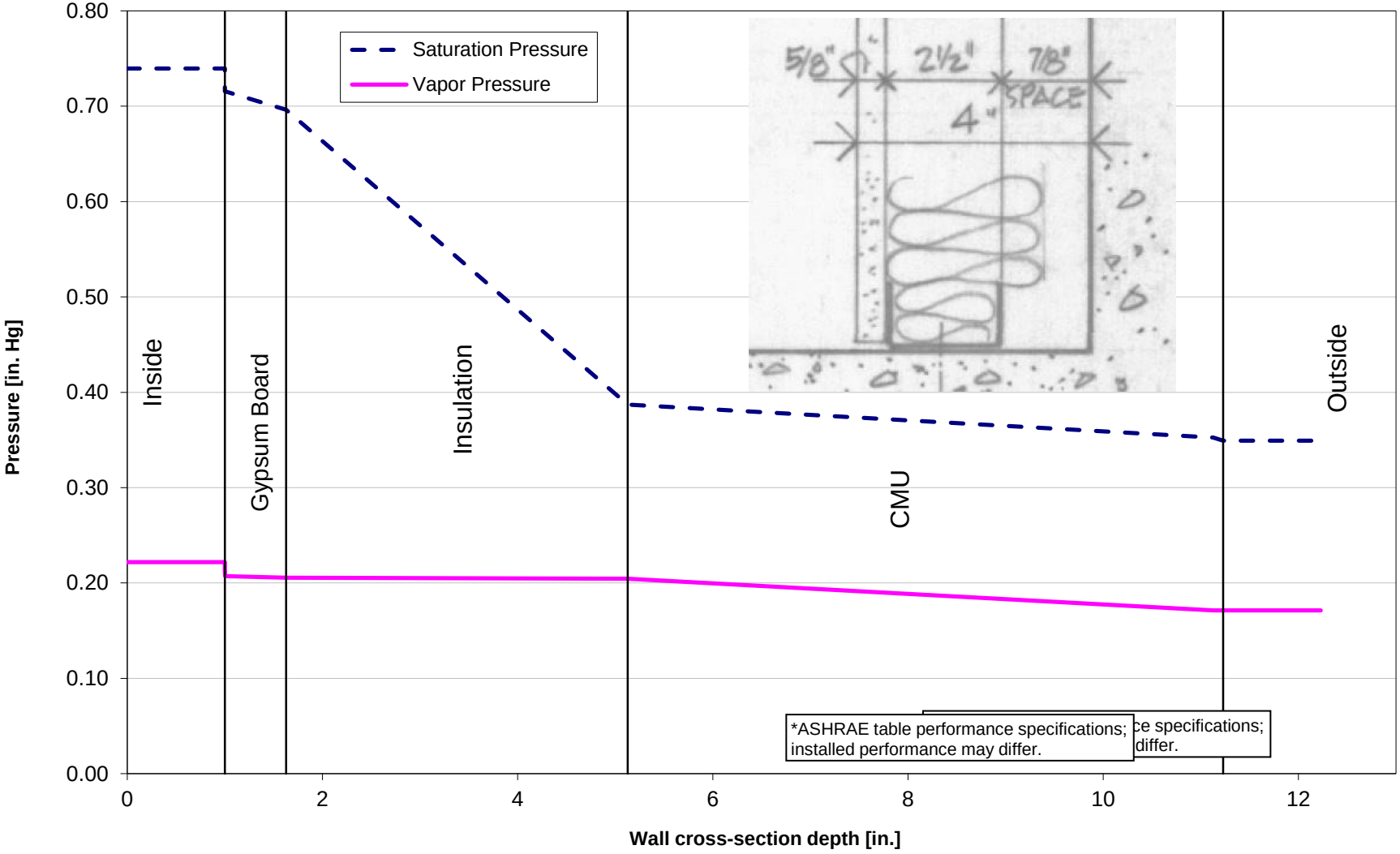
Terracon has provided consulting services for this assessment in general accordance with the Client's request for a site visit and a Report of our findings based on preliminary visual observations, limited moisture testing, and air leakage testing, subject to the extent that access was provided to the facility. The scope of services for this Report did not include, either specifically or by implication, any environmental or biological (e.g. mold, fungi, and bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials, or conditions. If the Client is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Appendix A
Dew Point Calculations and Graphs

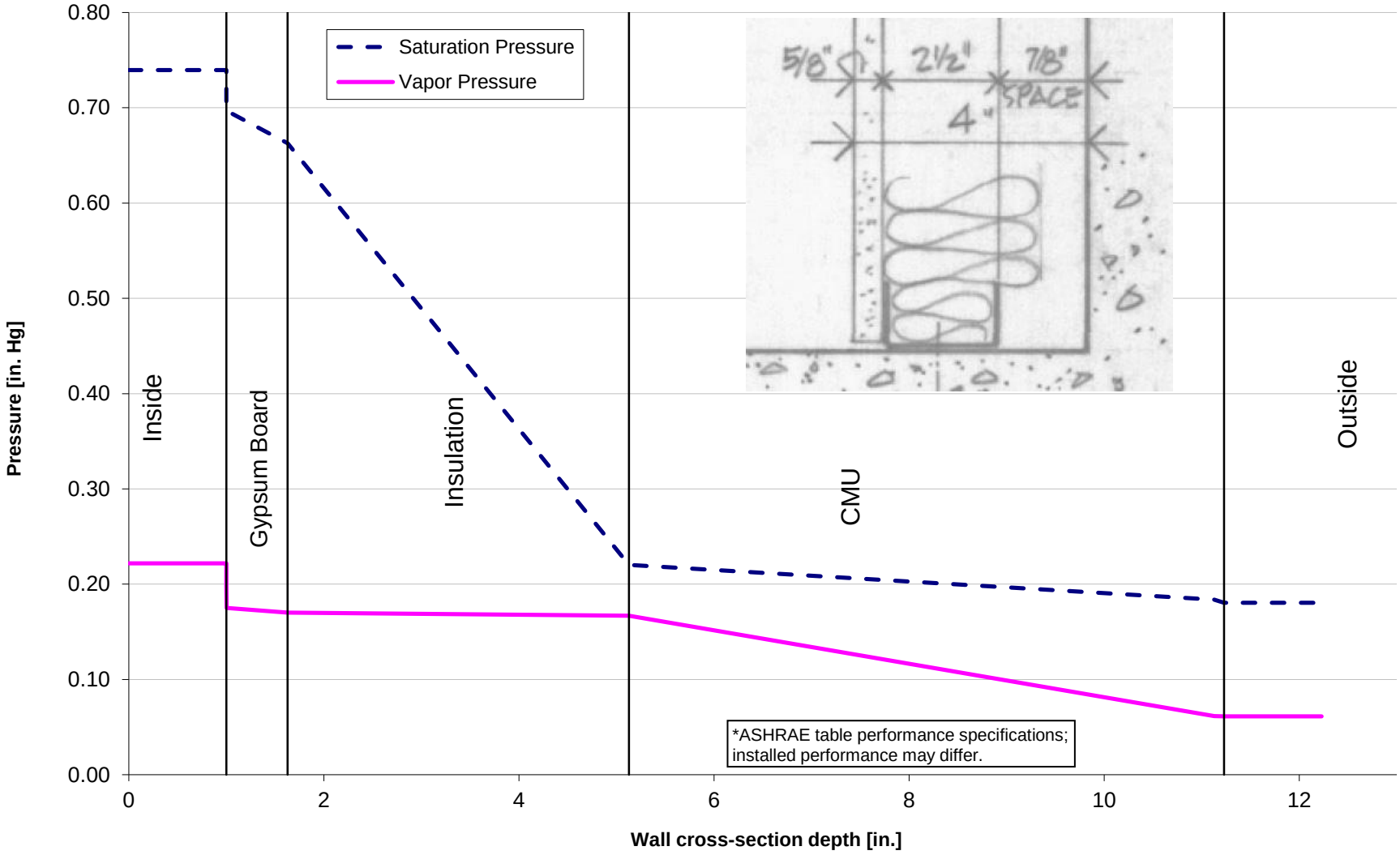
Herschler Study 1 - Case 1 - Interior (70°F, 30%), Exterior (26°F,44%)



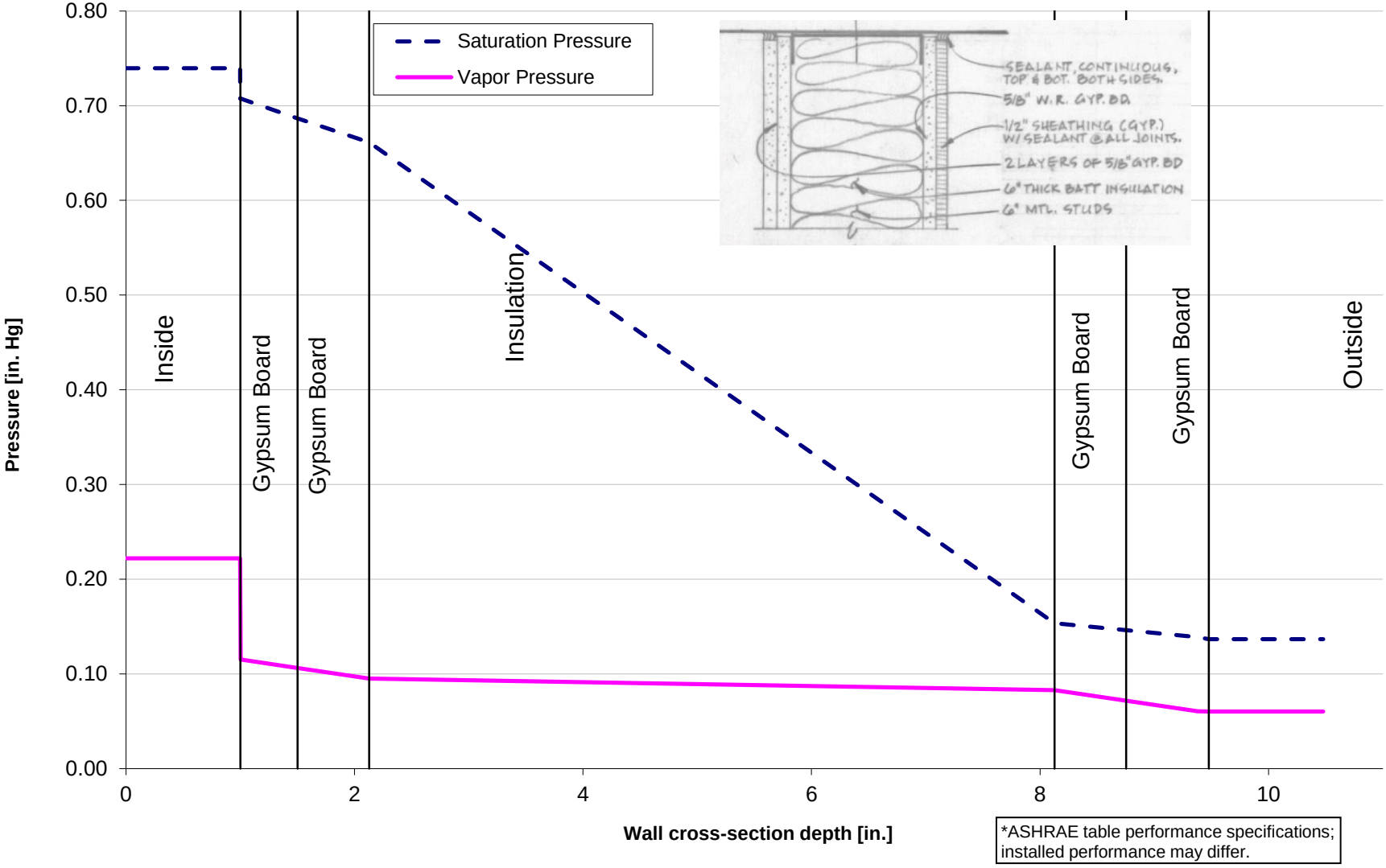
Herschler Study 1 - Case 2 - Interior (70°F, 30%), Exterior (49°F,49%)



Herschler Study 1 - Case 3 - Interior (70°F, 30%), Exterior (32°F,34%)

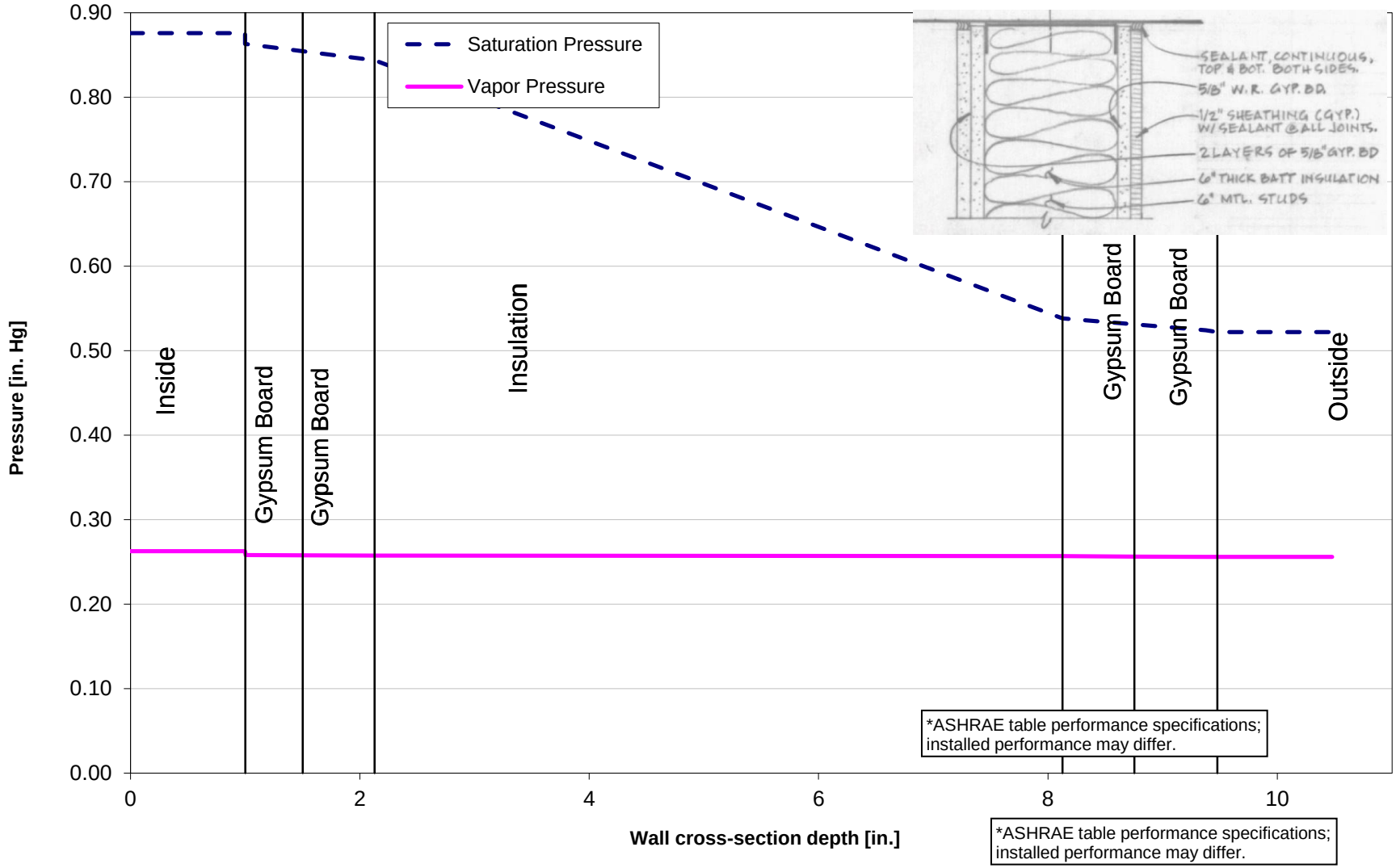


Herschler Study 2 - Case 1 - Interior (70°F, 30%), Exterior (26°F, 44%)

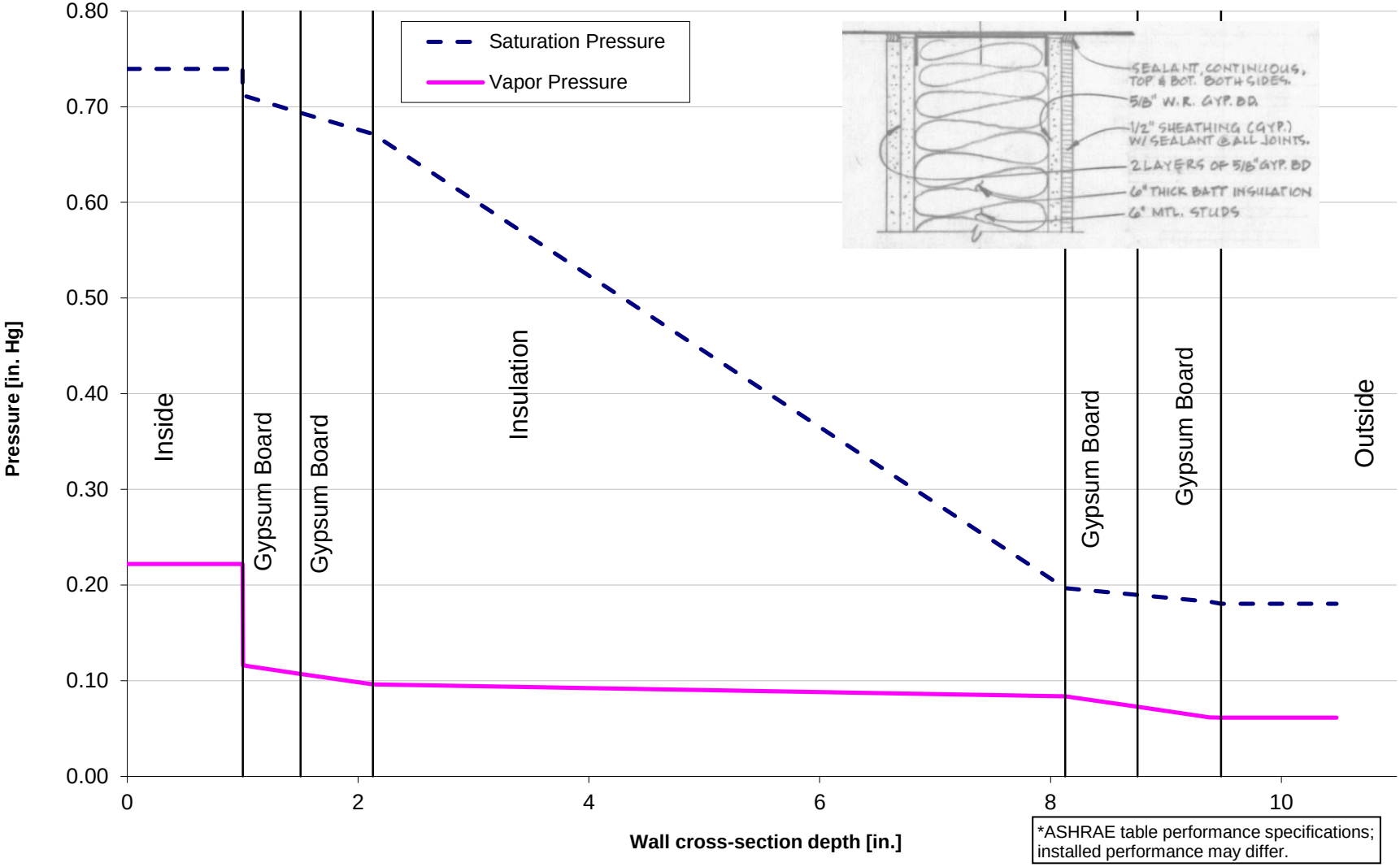


*ASHRAE table performance specifications; installed performance may differ.

Herschler Study 2 - Case 2 - Interior (75°F, 30%), Exterior (60°F, 49%)

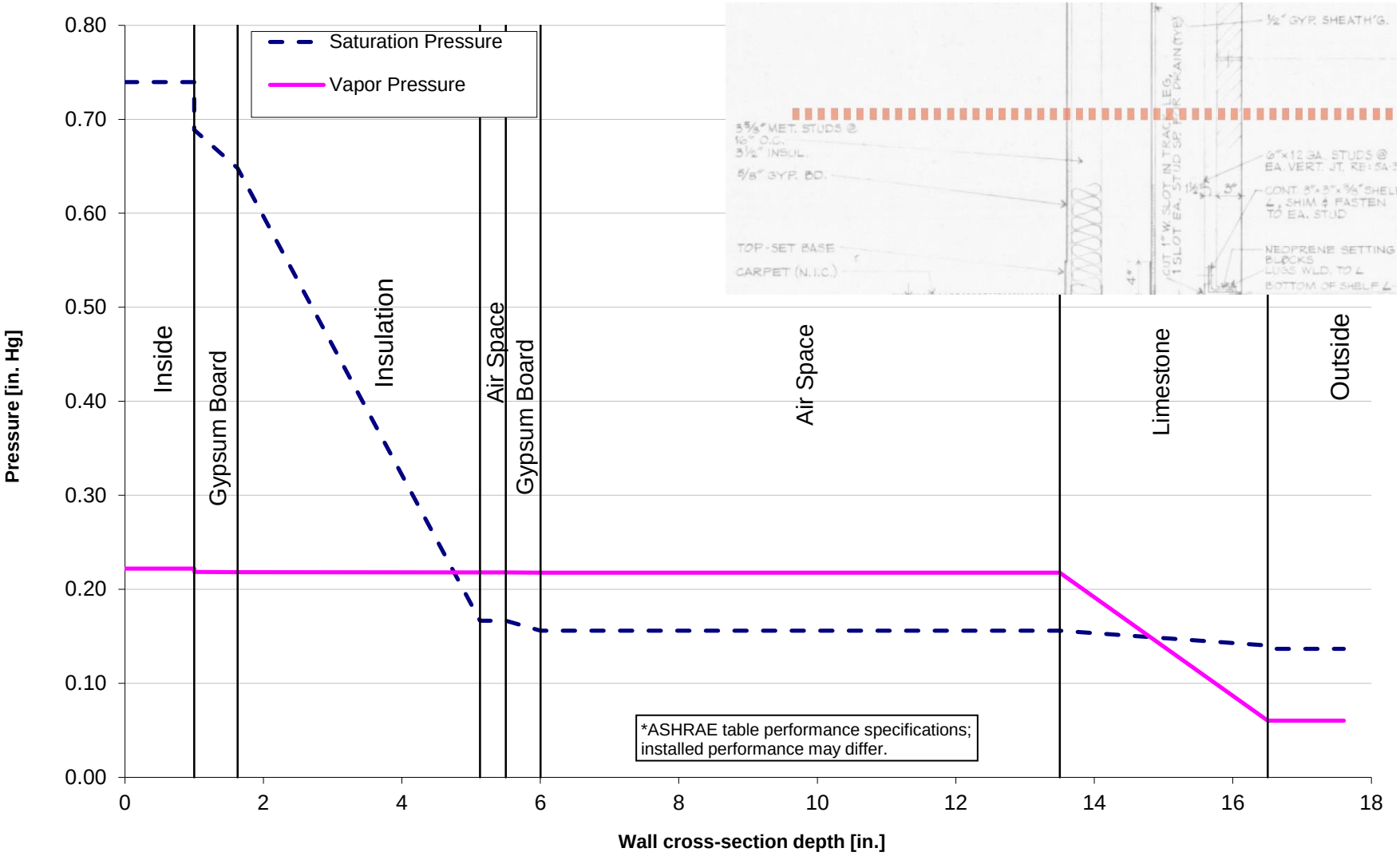


Herschler Study 2 - Case 3 - Interior (70°F, 30%), Exterior (32°F, 34%)

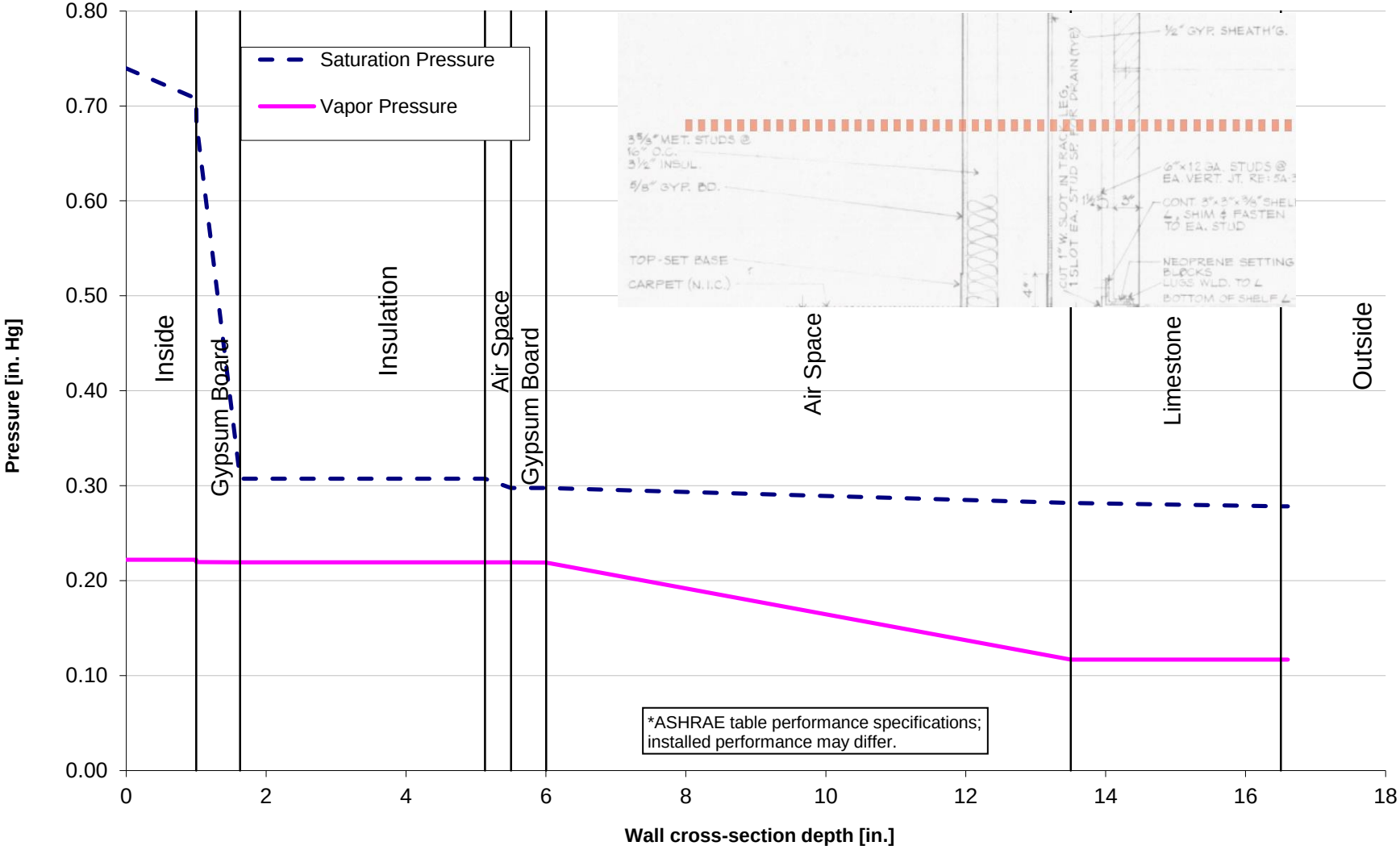


*ASHRAE table performance specifications; installed performance may differ.

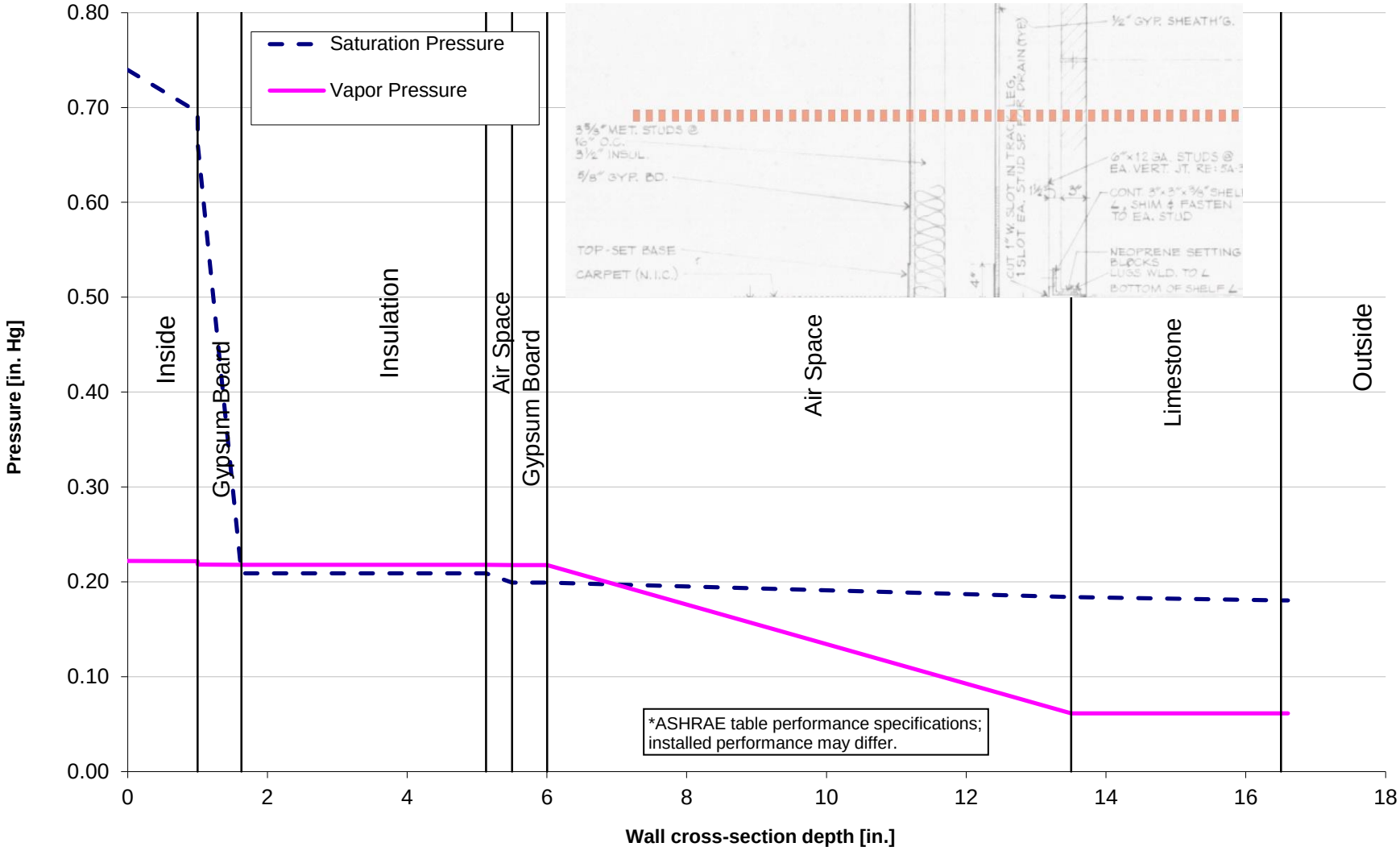
Herschler Study 4 - Case 1 - Interior (70°F, 30%), Exterior (26°F, 44%)



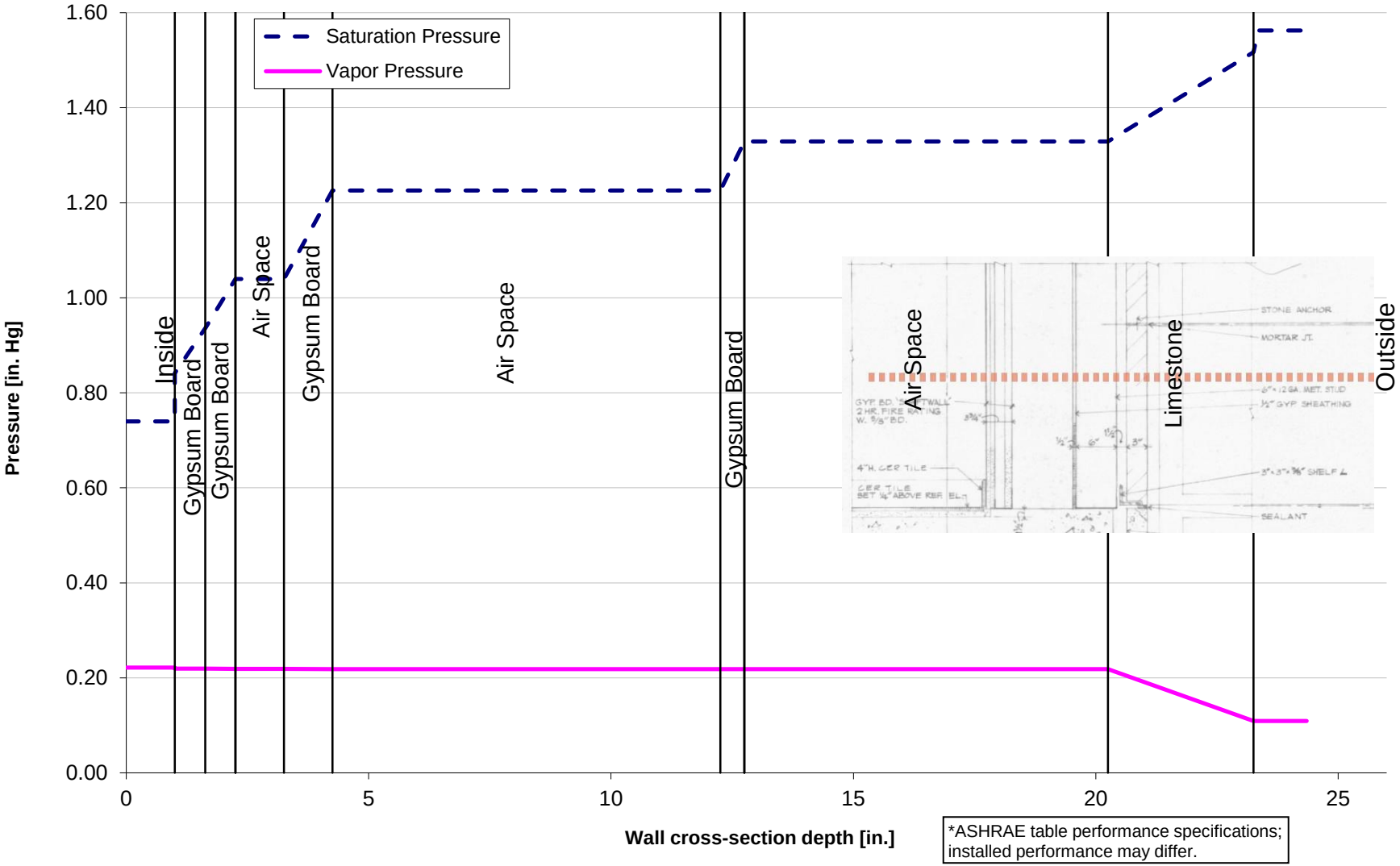
Herschler Study 4 - Case 2 - Interior (70°F, 30%), Exterior (43°F, 42%)



Herschler Study 4 - Case 3 - Interior (70°F, 30%), Exterior (32°F, 34%)

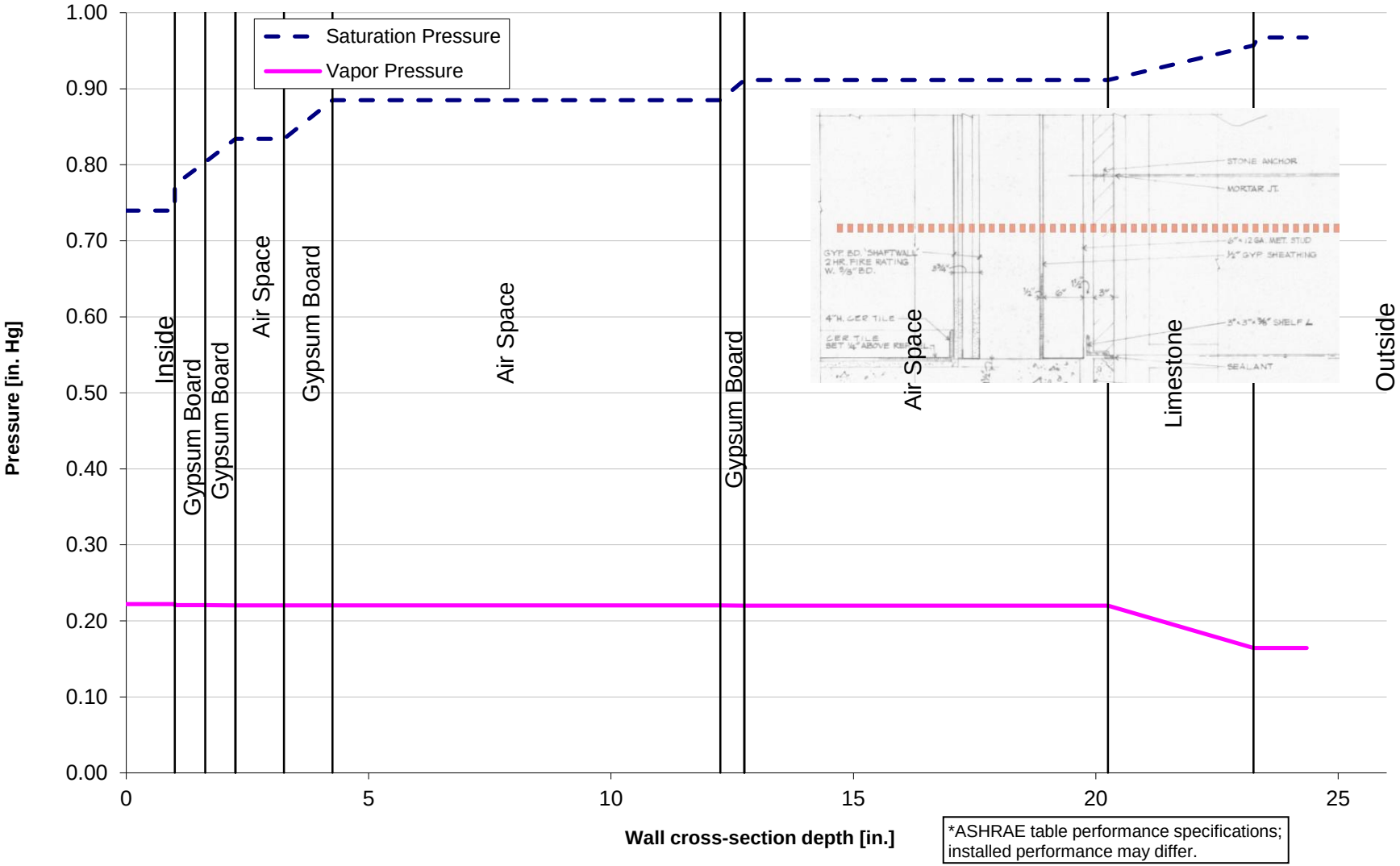


Herschler Study 6 - Case 1 - Interior (70°F, 30%), Exterior (93°F, 7%)



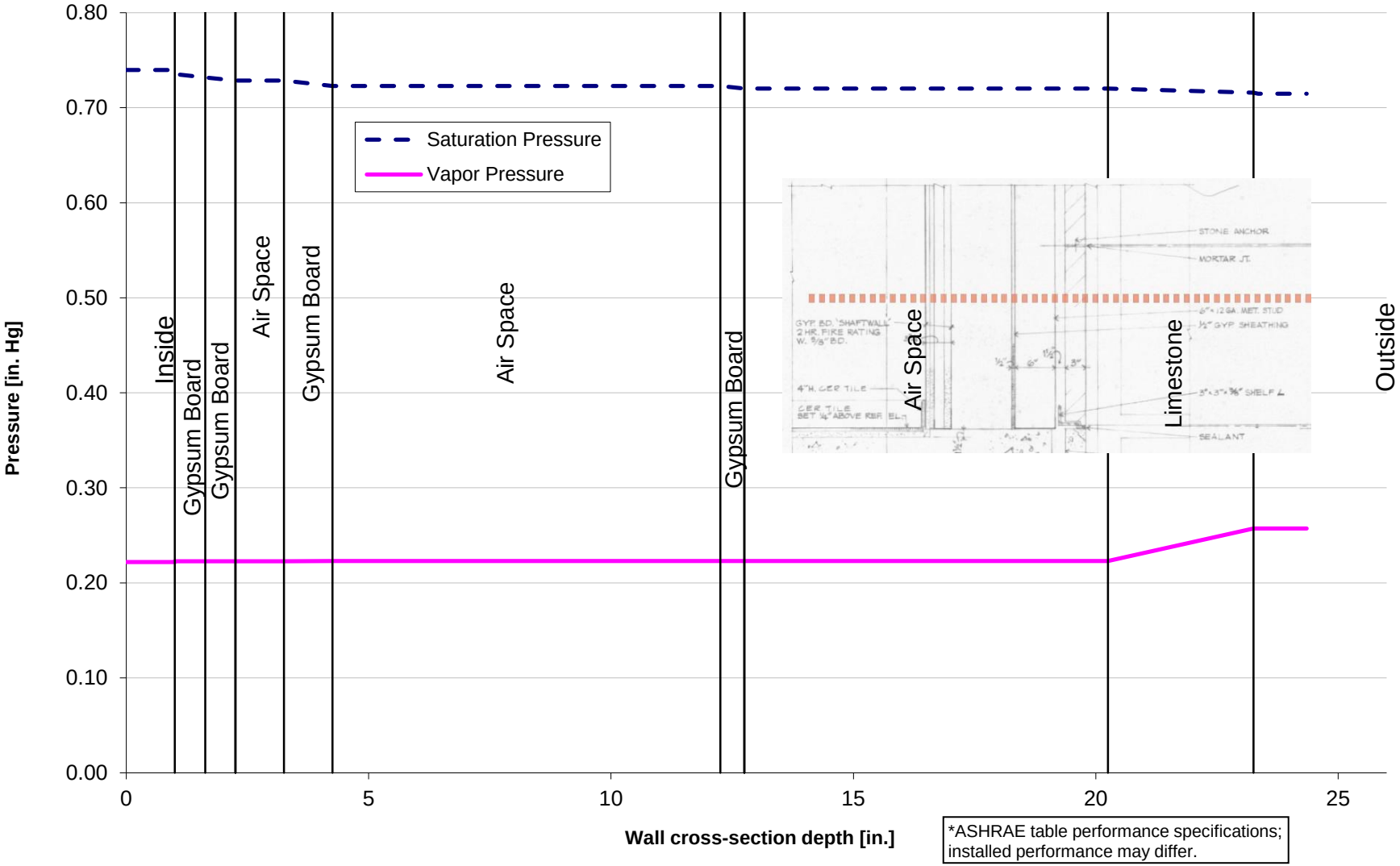
*ASHRAE table performance specifications; installed performance may differ.

Herschler Study 6 - Case 2 - Interior (70°F, 30%), Exterior (78°F, 17%)



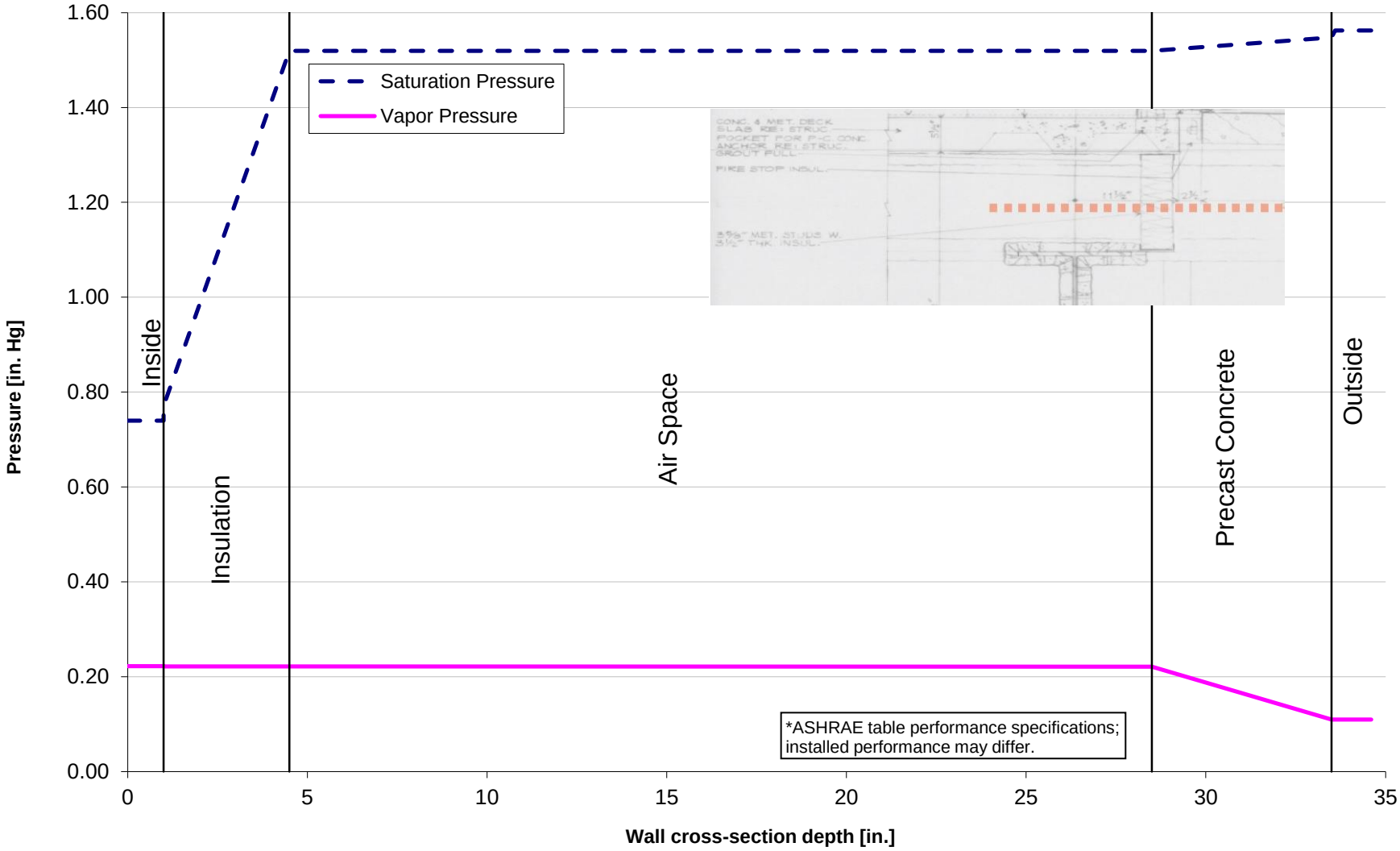
*ASHRAE table performance specifications; installed performance may differ.

Herschler Study 6 - Case 3 - Interior (70°F, 30%), Exterior (69°F, 36%)

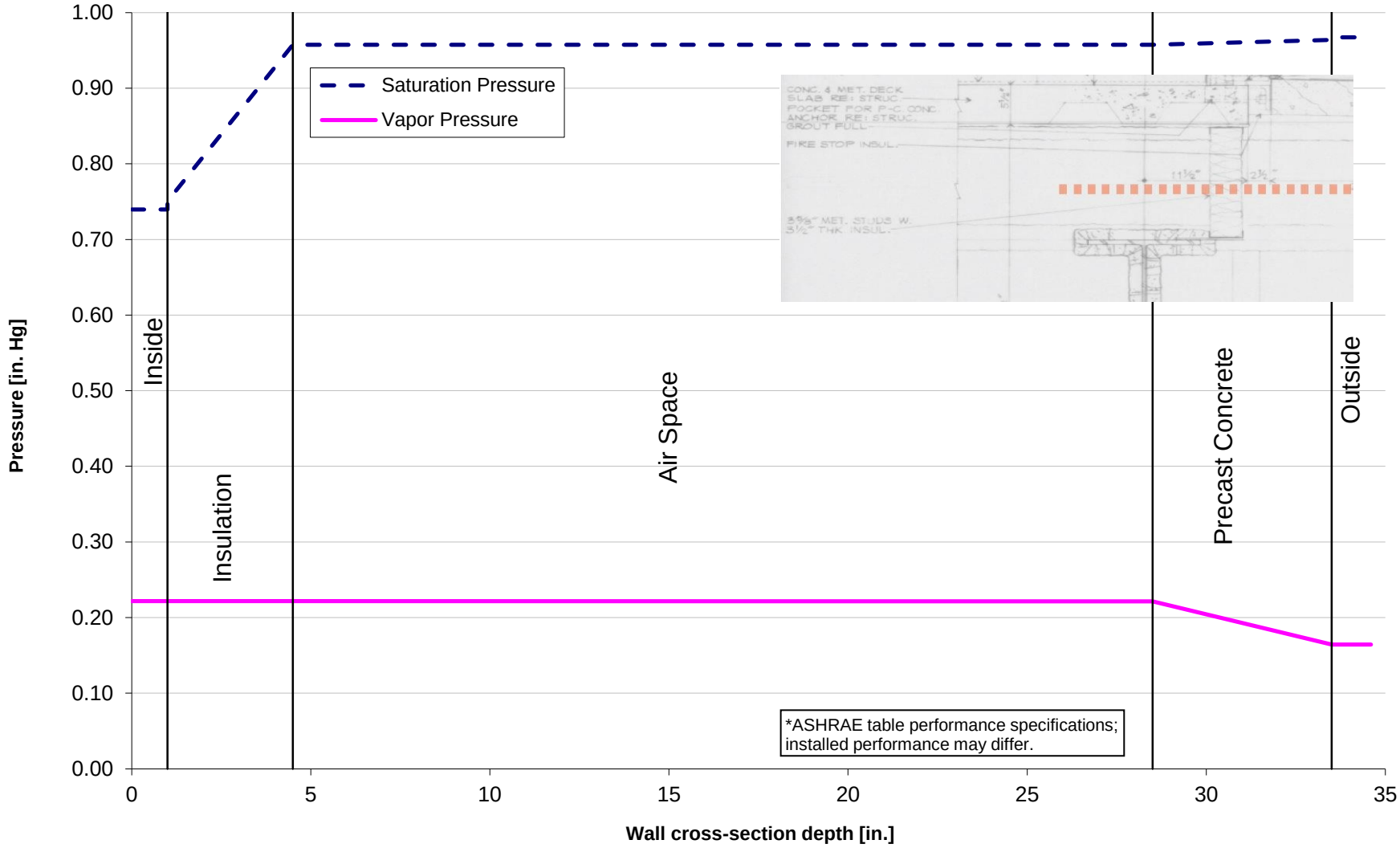


*ASHRAE table performance specifications; installed performance may differ.

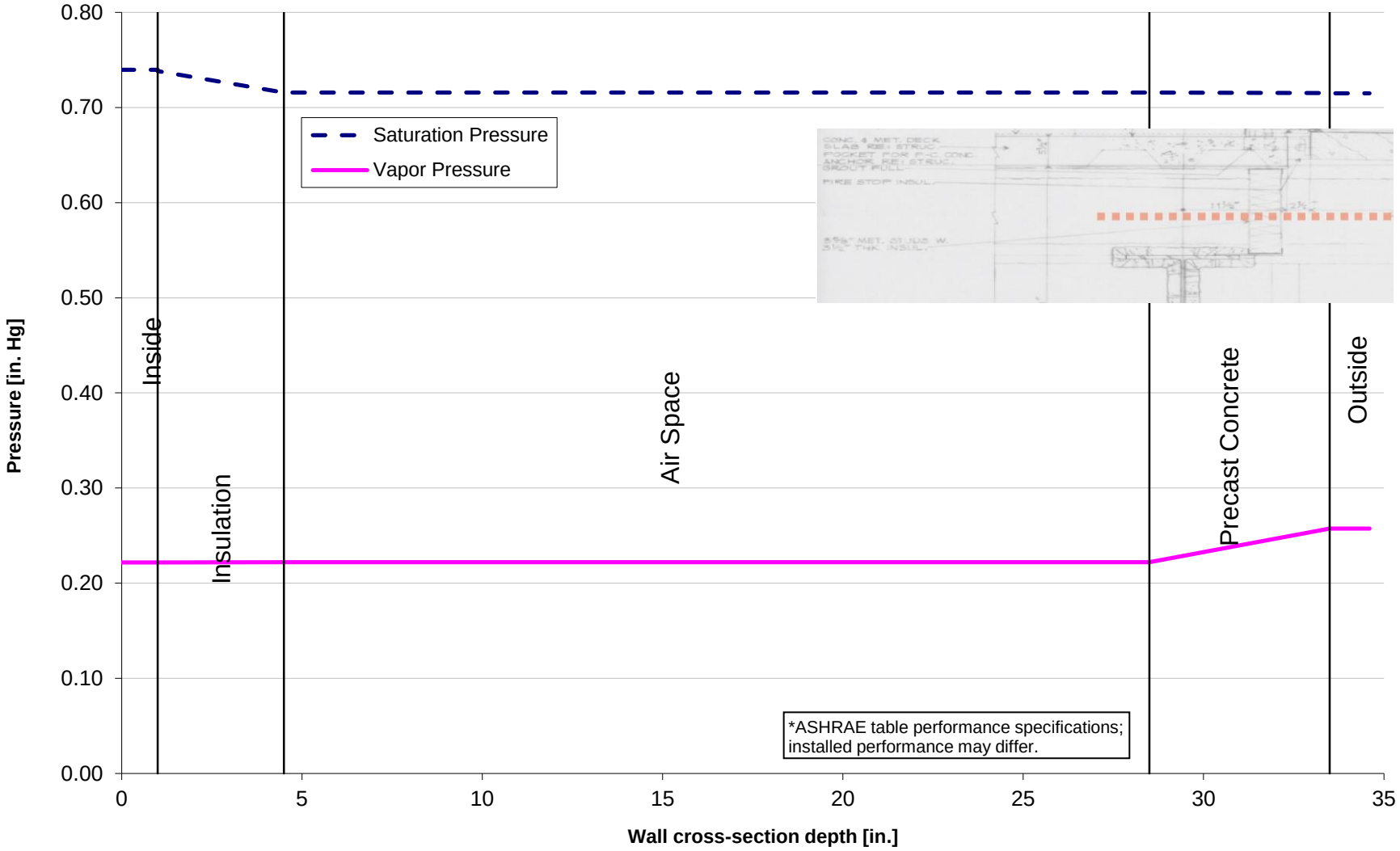
Herschler Study 9 - Case 1 - Interior (70°F, 30%), Exterior (93°F,7%)



Herschler Study 9 - Case 2 - Interior (70°F, 30%), Exterior (78°F,17%)



Herschler Study 9 - Case 3 - Interior (70°F, 30%), Exterior (69°F,36%)



Appendix B
Photographic Documentation

Photo #1 Exterior weep holes at the base of the parapet wall (typical).

Photo #2 Typical separation of window from frame multiple observed at multiple locations.

Photo #3 Typical condition of the exterior joint sealants. (Approx. 1.25 in. X 0.375 in.)

Photo #4 Typical condition of the exterior joint sealants.

Photo #5 Typical condition of the exterior joint sealants.

Photo #6 Typical condition of the exterior joint sealants. (Approx. 0.375 in. X 1.5 in.)

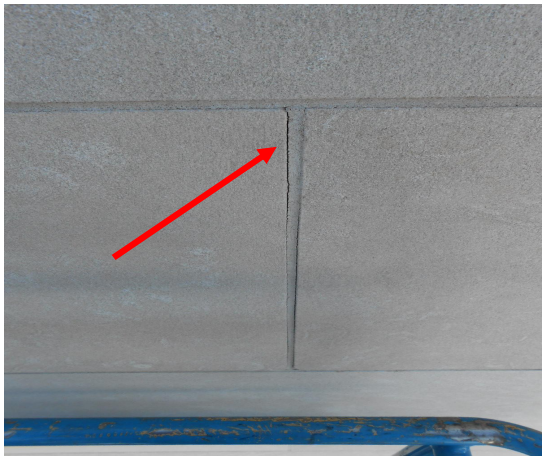


Photo #7 Representative cracking (approx. 0.125 in. X 4 in.) in the mortar joints of the limestone panels.

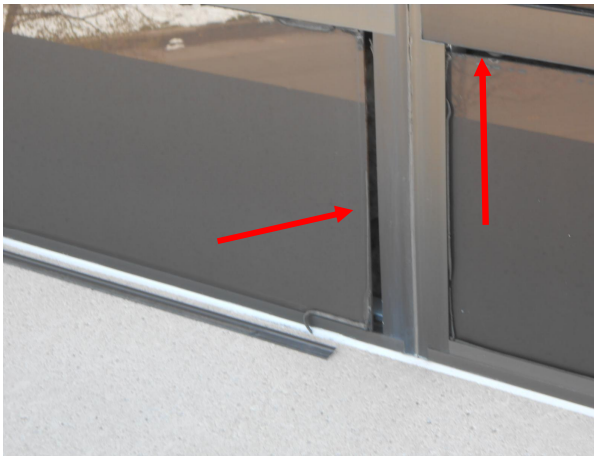


Photo #8 Large gaps created by weathering of the window gaskets, typical at multiple locations.

Photo #9 Typical condition of the exterior joint sealants.

Photo #10 Typical condition of the exterior joint sealants.

Photo #11 Large gaps created by weathering of the window gaskets, typical at multiple locations.

Photo #12 Weathered confining gasket in the window panes of the curtain wall system.

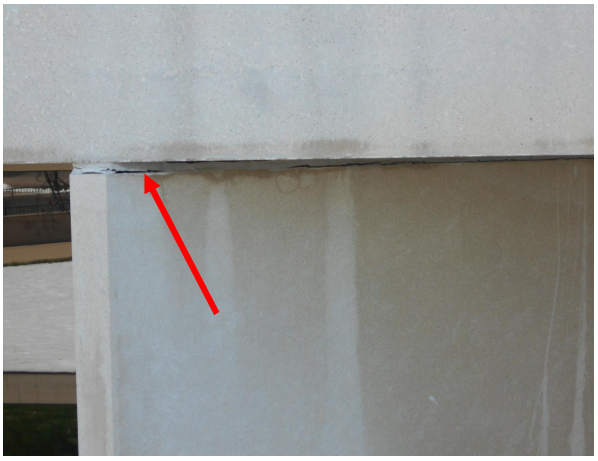


Photo #13 Typical weathered sealant joints between the precast fins on the south side.

Photo #14 Representative cracking in the mortar joints of the limestone panels.

Photo #15 Typical condition of the exterior joint sealants.

Photo #16 Typical condition of the exterior joint sealants. (Approx. 0.625 in. X 1.5 in.)

Photo #17 Typical condition of the exterior joint sealants.

Photo #18 Representative area where water penetrates through a weathered sealant joint.

Photo #19 Large gaps were observed at the sides of multiple windows.

Photo #20 Representative area of loose mullions in the curtain wall system.

Photo #21 Interior area where the paint is delaminating. Same area as seen in photo #20, but on the inside.

Photo #22 Representative view of inside the precast soffit. Typical surface rust on the steel bracing.

Photo #23 Representative view of inside the precast soffit. Typical surface rust on the steel bracing. Note the stain on the fireproofing.

Photo #24 Evidence of interior water intrusion.

Photo #25 Representative view above the drop-ceiling, where the exterior precast panels tie into the steel bracing; typical surface rusting.

Photo #26 Representative view above the drop-ceiling, where the exterior precast panels tie into the steel bracing; typical surface rusting.

Photo #27 Fiberglass insulation separating the precast soffit area and drop-ceiling area with 4-inch max thickness.

Photo #28 Representative view of inside the precast soffits. Typical surface rust is visible on steel bracing.

Photo #29 Exposed waterproofing liner in the planter over the underground parking structure.

Photo #30 Exposed waterproof liner in the planter. Concrete covers the planter bottom. The presence of waterproofing beneath the concrete is unknown.

Photo #31 Roof membrane termination at the top of the parapet wall.

Photo #32 One of many open screw holes in the roof membrane/counter flashing interface.

Photo #33 Opening in the parapet wall coping cap.

Photo #34 Representative view above the drop-ceiling, where the precast panels tie into the steel bracing; typical surface rusting.

Photo #35 Looking up into the parapet wall. The arrow denotes the open space.

Photo #36 Representative view above the drop ceiling. Typical water stains in the fireproofing are visible.

Photo #37 Efflorescence through cracks in the parking garage walls.

Photo #38 Deposits from the leaking water in the parking garage forming around ceiling cracks.

Photo #39 Looking up at the concealed expansion joint in the parking garage ceiling by PVC pipe. The pipe is leaking.

Photo #40 Efflorescence as a result of the parking garage ceiling cracks.

Photo #41 PVC piping that conceals the expansion joint in the parking garage ceiling.

Photo #42 Efflorescence in the parking garage ceiling cracks.

Photo #43 Efflorescence in the parking garage ceiling cracks under planters.

Photo #44 Efflorescence in the parking garage ceiling cracks.

Photo #45 Efflorescence in the parking garage ceiling cracks under planters.

Photo #46 Surface drain in the parking garage.